

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Third Periodic Review of the	)	MB Docket No. 07-91
Commission's Rules and Policies	)	
Affecting the Conversion	)	
To Digital Television	)	

To: Secretary, FCC

**COMMENTS**

The University of Alaska ("University"), by its attorneys, provides these comments in response to the *Notice of Proposed Rulemaking* in the referenced docket, FCC 07-70 (released May 18, 2007) ("*NPRM*").

The University applauds the FCC's determination to have a strong DTV system in place across the country on the February 17, 2009 digital transition deadline, and it fully supports that goal. However, the University strongly urges the FCC to exercise its discretion under the law in establishing the transition deadline to provide substantially more flexibility to stations regarding the process and timing of their achieving their "ultimate" or "final" DTV transmission facilities.

Specifically, with respect to its KUAC-DT, the University urges the FCC to consider the station's unique challenges by: (a) revising the DTV Table of Allotment parameters for the station to more appropriate levels which will permit as close to "replication" facilities as possible and allow KUAC-DT to feed its rural translator stations – namely a HAAT of 163 m, a non-directional antenna, and an ERP of 147.9 kW; (b) establishing a procedure to quickly process construction permit applications – such as KUAC's application to return to its current analog Channel 9 – as needed to address funding application requirements; and (c) allowing KUAC to

continue to operate its currently constructed and licensed DTV Channel 9 facilities through the end of transition and beyond, if necessary to maintain continuity of DTV service to its community. *See also* attached Engineering Statement.

## **BACKGROUND**

The University is a public institution of higher education and the licensee of noncommercial educational station KUAC(TV), in Fairbanks, Alaska. KUAC is the PBS member station in Fairbanks, broadcasting a wide variety of high-quality news, public affairs, informational, educational and entertainment programming, including children's programming, to the Fairbanks metropolitan area.

The University was allotted Channel 24 as its pre-transition digital channel, and KUAC-DT is currently licensed and operating on Channel 24 alongside KUAC's analog Channel 9 operation on the same tower. *See* FCC File Nos. BLEDT-20040525ADP and BLET-319. It was always the University's intention ultimately to return to its analog Channel 9 as its permanent digital channel. It sought the allocation of DTV Channel 9 in the January, 2005 First Round of the FCC's digital channel election process. That election was approved by the FCC, and the just-released *Seventh Report and Order and Eighth Further Notice of Proposed Rulemaking* in MM Docket No. 87-268 ("Seventh Report and Order") (rel. Aug. 6, 2007) specifies facilities for KUAC-DT on Channel 9 of 3.2 kW at 152 m HAAT.

### **I. The FCC should be flexible in the process for and timing of construction of final DTV facilities.**

The University strongly urges the FCC to exercise its discretion under the law establishing the February 17, 2009 digital transition deadline by providing substantial flexibility to stations regarding the process for and timing of their achieving their "ultimate" or "final" DTV transmission facilities. There should be no requirement to achieve replication or

maximized facilities (or such other facilities specified in the proposed DTV Table of Allotments) by any particular deadline, such as February 17, 2009, and certainly not earlier. Moreover, the process and timing contemplated by the FCC in the *NPRM* will create enormous difficulties for literally hundreds of stations across the country, who will virtually simultaneously have to take down analog or interim DTV stations and install equipment for their DTV stations (to get their DTV stations operating on their new permanent DTV channels, or to move DTV equipment to locations now occupied by analog equipment), particularly since that time occurs in the middle of the winter, which in many parts of the country makes towers inaccessible or tower work difficult or dangerous.

In addition to the probable physical impossibility of many stations making DTV facilities changes in the immediate run-up to the transition deadline, there are many other factors that will affect stations as they play out the transition in their particular circumstances. Many stations (including KUAC) have yet to apply for construction permits for their final DTV facilities, and can't yet know when they can do that, how long the process will take, and what difficulties or unexpected issues they will face. Many of these stations may, for one reason or another, want or need to apply for facilities that do not precisely line up with the facilities proposed to be allotted to them by the Seventh Report and Order. In addition, many stations may have continuing financial or other constraints that limit the facilities they can deploy now on their permanent DTV facilities, but have every intention to ultimately construct facilities reaching the largest possible audience.

For all these reasons, generally, the University urges the FCC to be as flexible as the law allows, focusing on identifying and addressing ways to facilitate a smooth transition in February

of 2009, and facilitating each station's own path and timing in achieving its final DTV facilities, so long as some minimally acceptable level of DTV service is being provided as of the deadline.

**II. The FCC must consider the unique set of circumstances which complicate the final steps of KUAC's DTV transition and the station's ability to serve its viewers post-transition.**

The University faces several unique challenges with respect to completing the transition for KUAC from current DTV Channel 24 to Channel 9, and maintaining its TV translator services to remote and rural parts of Alaska, by and beyond the transition date of February 17, 2009.

**Construction Timing.** While stations in many portions of the country will face serious difficulties with completing DTV construction and tower work as needed to build-out and convert facilities during winter months, these problems will be exacerbated for the University of Alaska. The only practical construction window for KUAC in Fairbanks occurs from late April through late September. Although the KUAC site is generally accessible during the winter, it is not accessible by the trucks required to deliver the required equipment or perform the necessary tower work. Outside of the late Spring and Summer months, the potential is high for substantial delays because the weather will not provide for acceptable or safe conditions. Performing the tower and facility work during the Alaskan winter, as leads up to the February 17, 2009 transition date, is impossible as a practical matter, given that average temperatures during that period are regularly well below zero degrees Fahrenheit. If the University were to secure the necessary funding for its DTV Channel 9 project in 2008 upon grant of a permit (*see* funding discussion below), the station's best case construction scenario would involve completing a build-out of the final Channel 9 DTV facility during the Summer of 2009.

**Funding.** The University, a public state institution of higher education, and KUAC, a noncommercial educational station, also face funding difficulties. Notably, the station has yet to secure the funds necessary to purchase the new equipment for conversion to DTV Channel 9. Like many public broadcasters and state entities, the University will rely on Federal grant funds to finance substantial portions of its equipment purchases. However, as standard sources for such funding – including the Corporation for Public Broadcasting – require that the corresponding FCC facility application be on file prior to an application for funding (and grantable prior to an award of funding), the University will be unable to obtain the necessary funding until the FCC process for the final DTV channel modifications has significantly progressed. Because such resources are not yet available to KUAC, the University currently estimates that it will be unable to fully transition its digital operations to its final DTV Channel 9 within the next nineteen months.

**Tower Site Mounting.** The University will need to mount its new DTV Channel 9 antenna in the same space currently occupied by KUAC's analog Channel 9 antenna. As a result, it will be necessary to remove the current analog Channel 9 antenna, presumably in February, 2009, and take the station's Channel 9 service off-air until the DTV Channel 9 replacements can be built-out and installed. The transition process will also require a simultaneous change of all four TV translator receivers from analog Channel 9 to digital Channel 9. Throughout the DTV transition, the Commission has recognized, and provided leeway for, antenna mounting logistical and timing complications such as these.

**Continuity of Translator Service.** The University currently maintains three TV translators stations (in Delta Junction, Healy, and Nenana, Alaska) which are fed by KUAC-TV's off-air signal, and a fourth in Manley Hot Springs, Alaska (which is licensed to a different

entity) also receives and rebroadcasts KUAC-TV's signal. In two of these communities, the translator rebroadcast of KUAC is the only off-air television signal available, and the other two communities only receive only one or two commercial broadcast television signals in addition to KUAC's noncommercial programming. Unfortunately, KUAC's current DTV Channel 24 operation is simply not strong enough to reach any of these translator stations, such that the translator service will simply be lost once KUAC's analog Channel 9 service is terminated and until a DTV Channel 9 facility with increased coverage is authorized and operational.

Notably, there is no headroom available on the current DTV Channel 24 transmitter to increase coverage and feed the translators, and purchasing a new DTV Channel 24 transmitter to address the matter (when KUAC is already in the process of transition to DTV Channel 9) would be a huge and unjustifiable expense. Moreover, operation of DTV Channel 9 as specified by the DTV Table of Allotments would also be unable to reach and feed the four TV translator stations, due to the technical differences between analog signal propagation (which allows the translator receivers to pick up even a snowy, or degraded, signal) and digital signal propagation (which experiences a drop-off "cliff effect"). *See* attached Engineering Statement. The translator facilities will also require technical conversion to digital, and cannot be accessed during winter in their remote Alaskan locations.

Under these circumstances, it appears that at least a temporary loss of service to these translator stations, and the viewers that rely upon them in their rural locations, is inevitable during KUAC's DTV transition. The best solution for minimizing the amount of time without television service (and thus minimizing the public interest and public safety losses) rests with a DTV channel 9 facility with increased coverage, which once authorized and constructed will allow the final KUAC-DT facility to again feed the translators and serve the communities

currently reachable only by the station's licensed analog facility. We urge the Commission to accord the University the flexibility to upgrade its Channel 9 DTV facilities now.

**III. The FCC should provide for flexibility in retaining temporary DTV channel operation beyond the Transition Date, and in adjusting the Table of DTV Allotments, to replicate analog service during and beyond the transition.**

The Commission recognizes, in Paragraph 90 of the *NPRM*, that some stations returning to their analog channel "may be able to temporarily remain on their in-core pre-transition DTV channel and provide adequate service after the transition date." The University supports this notion given that, as described above, it believes it will require additional time beyond the transition to complete its permanent Channel 9 DTV facility (due to construction, weather, funding, and related issues) and therefore will need to continue operating its current DTV Channel 24 facility after termination of its analog Channel 9 operation. This extended operation of the pre-transition DTV channel will be necessary to maintain service to the public, although, based on the size of the DTV Channel 24 authorization and facility, the University will not be able to serve the same area and population that receives KUAC's current analog TV service, as contemplated by the *NPRM*. However, the continued use of the DTV Channel 24 facility will meet the Commission's goal of retaining service during the transition period, because without it, the University would be unable to broadcast at all until its DTV Channel 9 facility is completed.

Likewise, even the permanent KUAC-DT Channel 9 facility, if restricted to the new Table of Allotments parameters, would be unable, once completed, to reach the station's current analog area and population or serve the station's translators. Accordingly, in order to more appropriately replicate the station's current analog population and area coverage, the University urges the Commission to demonstrate flexibility in finalizing the transition modification process and adjusting the Table of Allotments for KUAC-DT. To address these matters, the University

respectfully submits that the final KUAC-DT facility on Channel 9 should include three changes: a height above average terrain of **163 meters** to match the station's current analog license, with a **nondirectional** antenna (both of which were specified in the University's Comments submitted January 25, 2007 in MB Docket No. 87-268), and an effective radiated power of **147.9 kW**. See attached Engineering Statement.

### **CONCLUSION**

The University urges the FCC to adopt flexible rules consistent with the comments above.

Respectfully submitted,

**UNIVERSITY OF ALASKA**

By:     /s/ **Barry Persh**    

Todd Gray  
Margaret Miller  
Barry Persh

Its Attorneys

**DOW LOHNES** PLLC  
1200 New Hampshire Ave., N.W.  
Suite 800  
Washington, DC 20036  
(202) 776-2000

August 15, 2007





***Kessler and Gehman Associates, Inc.***

Telecommunications Consulting Engineers

**ENGINEERING TECHNICAL STATEMENT PREPARED BY WILLIAM T. GODFREY, JR. OF THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS CONSULTING ENGINEERS IN CONNECTION WITH FILING COMMENTS ON THE PROCEDURES AND RULE CHANGES ADOPTED IN THE THIRD PERIODIC REVIEW OF THE COMMISSION'S RULES AND POLICIES AFFECTING THE CONVERSION TO DIGITAL TELEVISION WITH RESPECT TO THE UNIVERSITY OF ALASKA (UOA) POST-TRANSITION DIGITAL BROADCAST FACILITY, KUAC-DT CHANNEL 9, FAIRBANKS, ALASKA.**

The firm Kessler and Gehman Associates, Inc. (KGA) has been retained by University of Alaska (UOA), licensee of digital broadcast facility KUAC-TV Channel 9, to prepare an engineering analysis with respect to the Third Periodic Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television (Third DTV Periodic NPRM).

**Discussion**

As stated in the Third DTV Periodic NPRM, the purpose of this periodic review is to assess the progress of the transition and make any necessary adjustments to the Commission's rules and policies to facilitate the introduction of DTV service. The Third DTV Periodic NPRM states that the DTV Table is based on the Tentative Channel Designations (TCD) announced for stations, as well as the Commission's efforts to promote overall spectrum efficiency and ensure that broadcasters provide the best possible service to the public, including service to local communities. The purpose of this engineering statement is to respectfully make the Commission aware that the UOA's post-transition broadcast facility, KUAC-DT Channel 9, as depicted in the Final DTV Table of Allotments (TOA) will fall well short of feeding the UOA's four authorized digital translators which are critical for serving the communities surrounding Fairbanks, AK. The licensed KUAC-TV Channel 9 facility currently feeds four licensed UOA analog translators (K05FI, K05HI, K06JX and K07ND) which serve the public in multiple towns surrounding the principal community of Fairbanks, AK. The public would be adversely impacted if, after the



transition, it could no longer receive the critical public television content that it currently enjoys from the licensed KUAC-TV Channel 9 due to the inability to feed the surrounding authorized UOA digital translators as a result of insufficient power.

The UOA filed comments in January 2007 notifying the Commission that the proposed DTV TOA, as depicted in the Seventh Further Notice of Proposed Rule Making, specified an incorrect antenna ID and antenna HAAT. The Final DTV TOA, as depicted in the Seventh Report and Order and Eighth Further Notice of Proposed Rule Making, demonstrated that the Commission changed the antenna ID from No. 74463 to No. 80229 which was an improvement; however, it was not changed to nondirectional. The KUAC-TV and KUAC-DT facilities are licensed to operate using nondirectional antennas and the directional pattern depicted in the Final DTV TOA for KUAC-DT Channel 9 would result in major delays with respect to building its post-transition DTV facility and it would cause an unnecessary financial burden. Also, the Final DTV TOA revealed that the antenna HAAT was not changed from 152 m to 163 m as requested in the UOA January 2007 filing. Again, the post-transition KUAC-DT Channel 9 facility will operate using the existing KUAC-TV Channel 9 top-mount antenna that has a licensed antenna height radiation center of 163 m AAT.

The UOA also retained KGA to determine if the parameters of the KUAC-DT Channel 9 post-transition facility, as depicted in the Final DTV TOA, would provide at least the minimum signal strength required for digital reception at the aforementioned four surrounding authorized UOA digital translators. It is well documented that digital signals, unlike analog, have a cliff effect where there is a sudden loss in reception when signal strength is not adequate. The 3.2 kW ERP depicted in the Final DTV TOA for the KUAC-DT Channel 9 post-transition facility will not be sufficient to overcome to cliff effect which will result in the residents in the following Alaska towns adjacent to Fairbanks losing perhaps its only source of public television: 1) Manley Hot Springs; 2) Healy; 3) Delta Junction; 4) Big Delta; and 5) Anderson. This would have an impact to a predicted 5,559 persons according to U.S. Census 2005 Estimation Data. Of course, this is not a



problem with the licensed 46.8 kW analog facility because the reception does not go blank as the signal strength becomes weaker at further distances.

Exhibit 1 is an interference-free Longley-Rice coverage map which pictorially depicts the predicted coverage area of the licensed KUAC-TV Channel 9 analog facility and the four UOA translators that receive its signal to be translated. The licensed ERP for KUAC-TV Channel 9 is 16.7 dBk (46.8 kW). Exhibit 2 is an interference-free Longley-Rice coverage map which pictorially depicts the predicted coverage area of the KUAC-DT Channel 9 post-transition DTV facility as specified in the Final DTV TOA and the four UOA translators that would receive its signal to be translated. The ERP for the KUAC-TV Channel 9 Final TOA facility is 5.1 dBk (3.2 kW). Therefore, the KUAC-DT Final DTV TOA facility will take an instant 11.6 dB hit. Current generation professional cable television-type analog receivers have a signal reception threshold range on average from -20 dBmV to +30 dBmV (50 dB range) and current generation professional cable television-type digital receivers have a signal reception threshold range on average from -15 dBmV to +20 dBmV (35 dB range). Therefore, the post-transition KUAC-DT facility as specified in the Final DTV TOA not only needs to make up an additional 11.6 dB in ERP to maintain the same signal threshold as the licensed analog facility, it also has to make up an additional 5 dB to compensate for the reduced signal reception threshold for professional cable television-type receivers. Therefore, the KUAC-DT Channel 9 ERP as specified in the Final DTV TOA is 16.6 dB below the power required for the UOA's digital translators to receive an equivalent digital signal. Accordingly, the appropriate ERP for the KUAC-DT Final DTV TOA is 21.7 dBk (147.9 kW) which is in compliance with the maximum antenna height and power for a high-band digital VHF facility located in Zone 2 (16.6 dBk + 5.1 dBk).

Exhibit 3 is an interference-free Longley-Rice coverage map which depicts the predicted coverage area of the proposed KUAC-DT Channel 9 post-transition DTV facility with an ERP of 147.9 kW which is the minimum power required for the four UOA digital translators to receive its signal to be translated. The mountainous terrain plays a very big part in why it is so difficult for



**Kessler and Gehman Associates, Inc.**

Telecommunications Consulting Engineers

the UOA to reach its translators as can be seen by referring to KUAC terrain plot depicted in Exhibit 4.


Due to insufficient power as well as the “cliff effect” issue and severe terrain shielding that will surely limit the ability for the KUAC-DT Channel 9 digital post-transition facility from transmitting a sufficient signal for reception at the surrounding translator sites, the UOA respectfully requests a post-transition ERP of 147.9 kW using an omnidirectional antenna with an antenna height radiation center of 163 m AAT.

### **Certification**

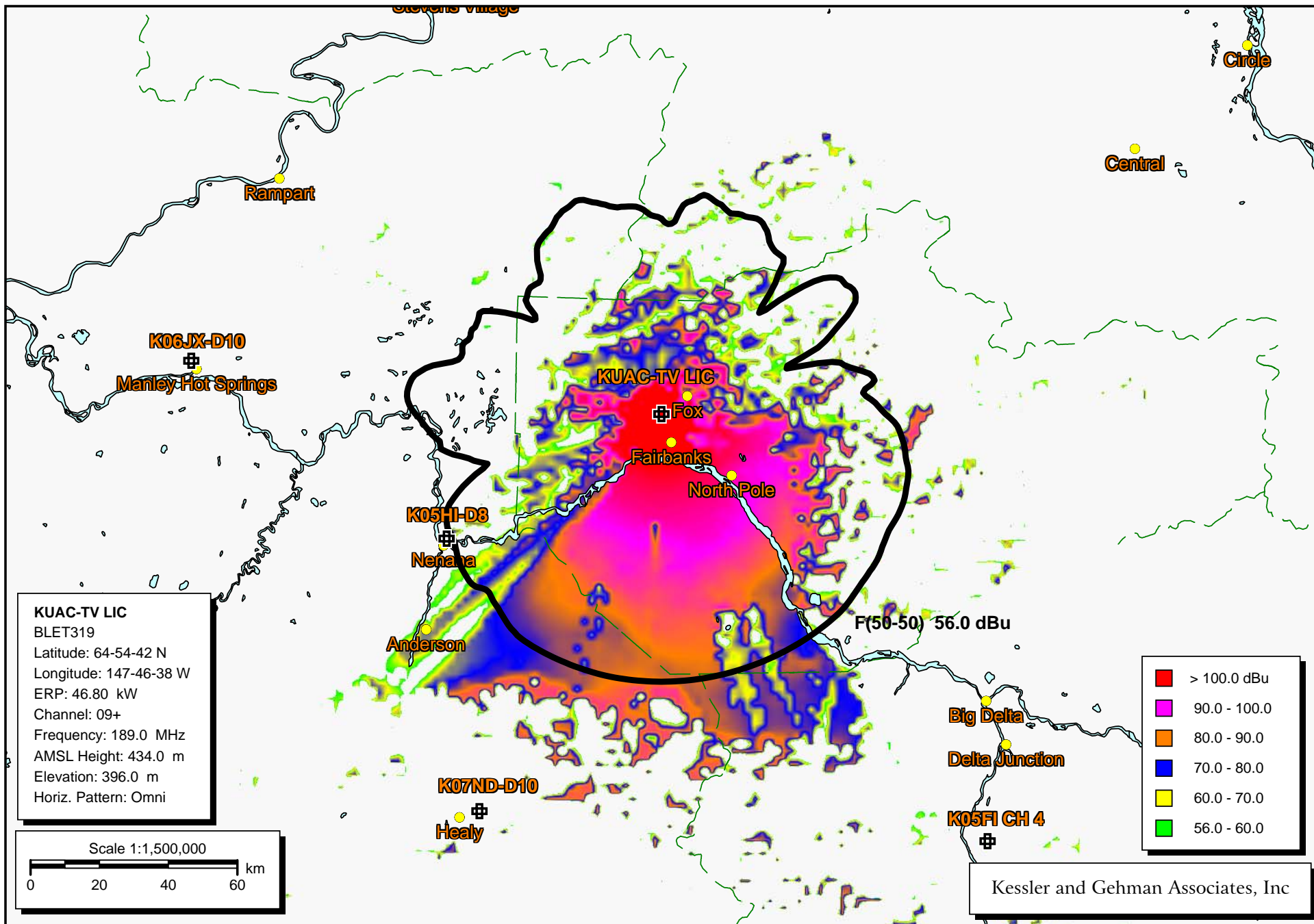
This technical statement was prepared by William T. Godfrey, Telecommunications Consultant with Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and has been working in the field of radio and television broadcast consulting since 1998. He graduated from the University of North Florida with a Bachelor of Arts degree in Criminal Justice and a minor in Mathematics in 1993. As a Professional in the field of Telecommunications he states under penalty of perjury that the information contained in this report is true and correct to the best of his knowledge and belief.



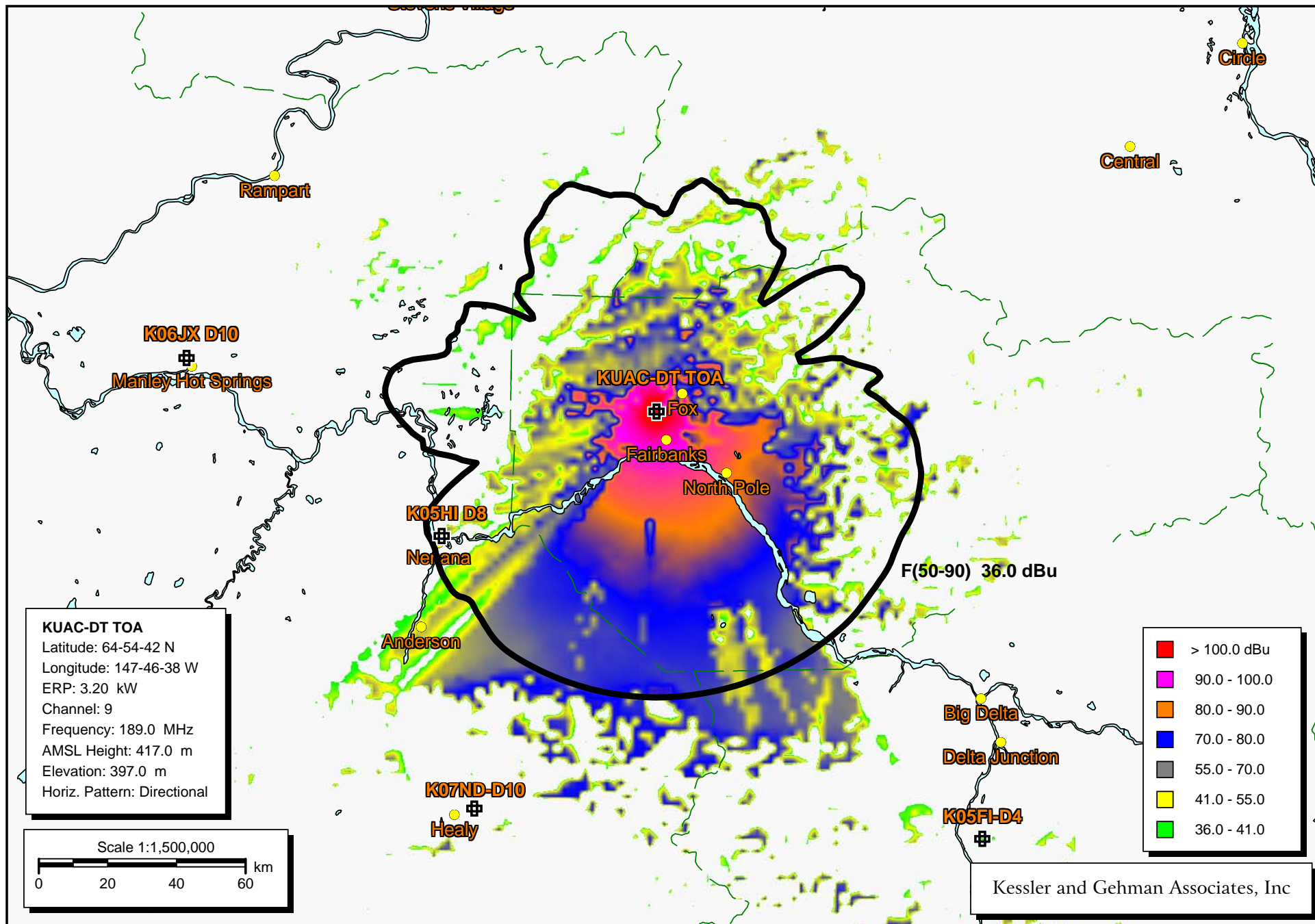
KESSLER AND GEHMAN ASSOCIATES, INC.

  
WILLIAM T. GODFREY, JR.  
Telecommunications Technical Consultant

14 August, 2007

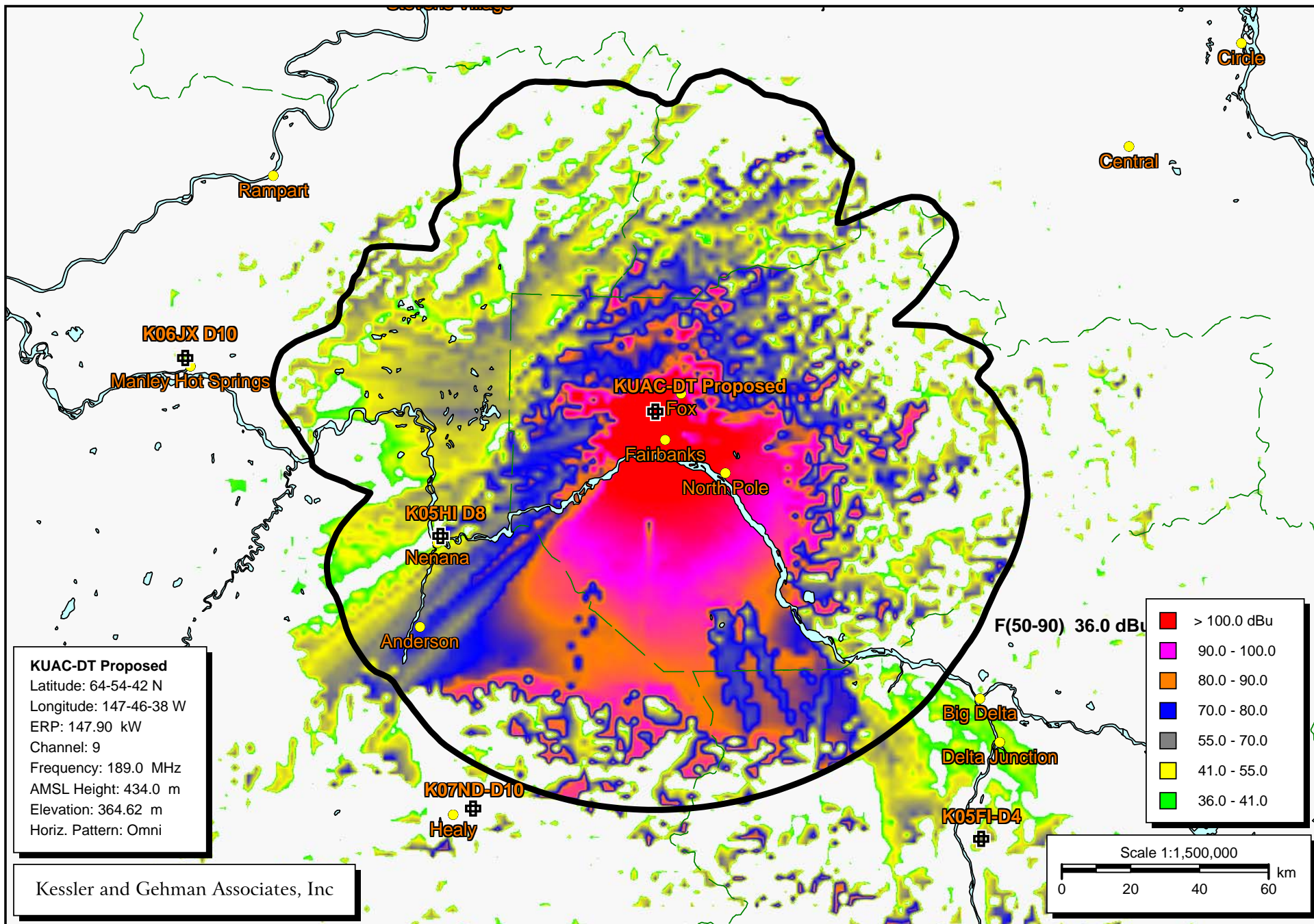


Licensed KUAC-TV Channel 9 Longley-Rice Interference-Free Coverage



KUAC-DT Channel 9 (Final DTV TOA) Longley-Rice Interference-Free Coverage

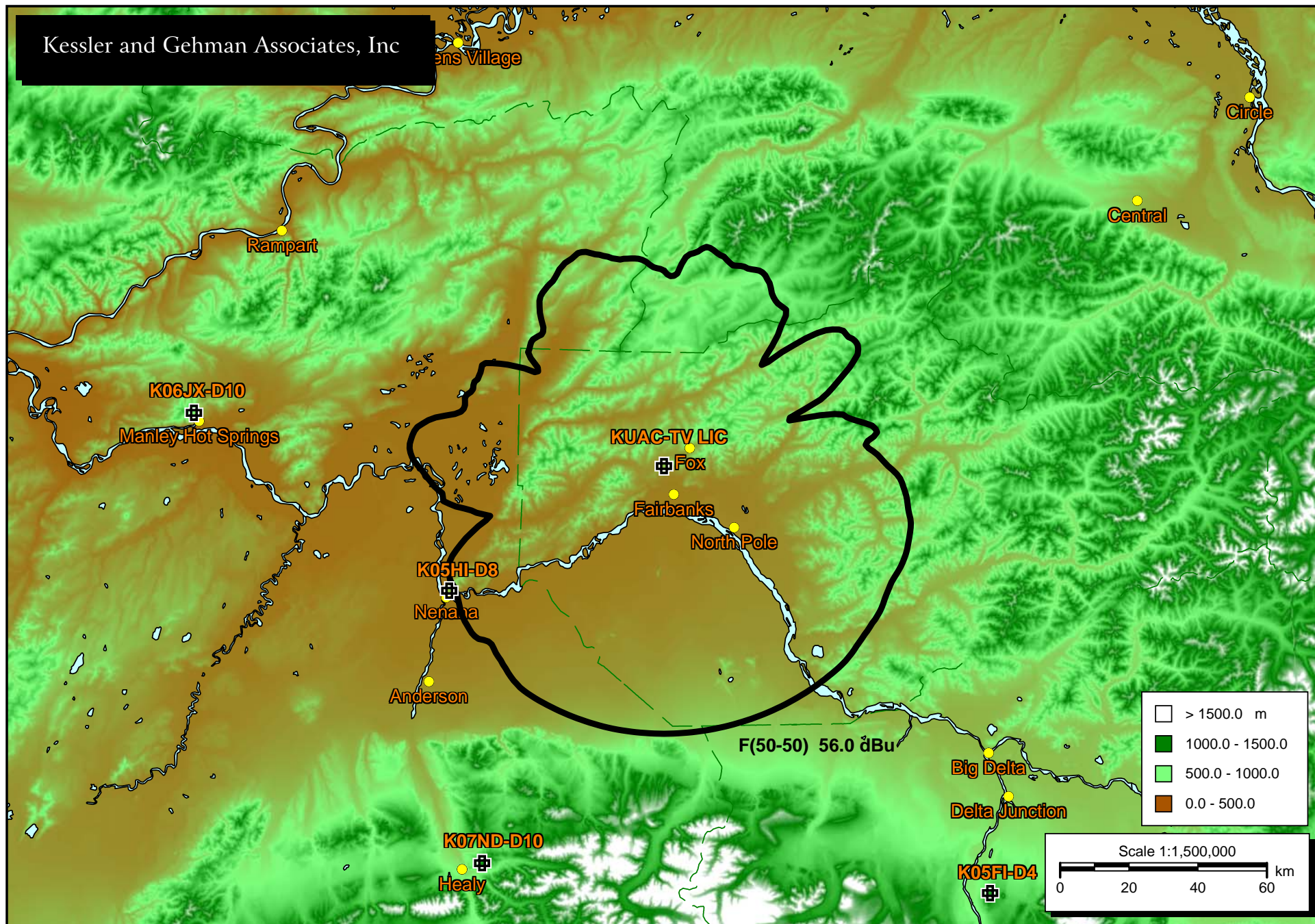




Proposed KUAC-DT Channel 9 Longley-Rice Interference-Free Coverage



Kessler and Gehman Associates, Inc



KUAC Terrain Plot